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REMARKS

The presented claims 1, 3-7, 10-16 and 18-20 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner states that, in independent claims 1 and 13, it is unclear and confusing as to what is meant by "wherein a thermally conductive lubricant means is not present between the second surface of the device and the heat conductive member." In support of this statement, Examiner alleges that there is indeed a "thermally conductive lubricant means" in the claimed solid solder joint bonding the device to the heat conductive member. Applicants emphatically traverse this rejection. They deny that their claims recite or imply the existence of a thermally conductive lubricant in the solid solder joint bonding the device to the heat conductive member; and they do not understand why the Examiner makes this claim.

Applicants' invention is an electronic assembly comprising at least one circuit device having a first side mounted to a substrate in a housing, wherein a second side of the device opposite the first side of the device is bonded to a heat conductive member by a recited solid solder joint. The solid solder joint is formed from an indium preform into which one or more alloying constituents diffuse and lead to solidification of the solder joint in a process unique to applicants' invention. The solid solder joint bonding the circuit device to the heat conductive member specifically replaces prior art arrangements in which the second side of the device is pressed against the heat conductive member and a thermally conductive lubricant in the form of a thermally conducting grease is used to fill any gaps therebetween. Applicants' claimed solid solder joint replaces and eliminates the thermally conductive lubricant of the prior art and, in so doing, greatly increases the heat flow capacity of the heat removing path for improved cooling of the circuit device.

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Is Examiner claiming that a solid solder joint is a lubricant? This is a contradiction in terms. A solid solder joint bonds the second side of the circuit device to the heat conductive member; and this is inconsistent with the function of a lubricant, which is to reduce friction between two members sliding against one another. With applicants' recited solid solder joint, no such sliding movement can possibly take place. Thermally induced stresses in the device, which are relieved in prior art devices by lubricated sliding motion, are reduced in applicants' claimed device by limiting movement between the substrate and the heat conducting member with overmolding/underfilling compound 32 (paragraph [0012]) or joining them with a structural adhesive 24 (paragraphs [0012], [0018], [0019]).

Applicants' recitation, "wherein a thermally conductive lubricant means is not present between the second surface of the device and the heat conductive member" means that there is no thermally conductive lubricant between the second surface of the device and the heat conductive member. This is clear and consistent with everything else in the application. For example:

1. The recitation defining applicants' solid solder joint does not include the word "lubricant." Thus, applicants' recitation of the solid solder joint does not require the presence of a lubricant.
2. The remainder of the claim uses the word "lubricant" only once, and that is in a negative limitation denying the presence of a lubricant in the space occupied by the solid solder joint. Thus, applicants' claim recites that there cannot be a lubricant in the solder joint.
3. The entire application uses the word "lubricant" only in characterizing the prior art or in denying the use of a lubricant of the prior art between the circuit device and the heat conductive member. Thus, there is no support for Examiner's statement anywhere in the application.

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4. The presence of a lubricant as, or in, a substance described and recited as creating a solid joint between two members is a physical and logical contradiction.

Applicants thus assert that the claim does indeed particularly point out and distinctly claim the subject matter they regard as the invention. They respectfully request withdrawal of the rejection under 35 USC 112 and allowance of their presented claims, or at least examination relative to the prior art. But if examiner disagrees and wishes to persist in this rejection, applicants respectfully request that he specifically identify the alleged lubricant in applicants' claim recitations and/or explain his statement in more detail in order to clarify the actual issue.

Please charge any monetary deficiencies and credit any overpayment to Deposit Account No. 50-0831.

Respectfully submitted,



Robert M. Sigler
Attorney - Reg. No. 26,505
(248) 813-1245